

Clinical Subspecialty Resources on the World-Wide-Web

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The rapid evolution and proliferation of the Internet and the World-Wide-Web (WWW) has resulted in the ready availability of inexpensive, graphically-based, client-server software tools for electronic publishing on all popular hardware and software platforms. One of the most interesting aspects of the World-Wide-Web is the way it has allowed individuals, small companies, and special-interest groups to communicate directly with other individuals of like interest anywhere in the world at minimal cost, bypassing traditional media channels.

In this poster presentation, we describe and will demonstrate "Neonatology on the Web" (<http://www.csmc.edu/neonatology/>), a World-Wide-Web-based clinical and medical informatics resource for health professionals in neonatal/perinatal medicine. "Neonatology on the Web" demonstrates how the WWW can augment peer-reviewed journals to disseminate highly specialized information, rapidly and in depth, to a relatively small and widely-scattered audience. We hope that this WWW site may serve as an example and model for clinical resources targeted at other medical subspecialties.

The major content areas of the "Neonatology on the Web" site are:

1. **On-line clinical reference materials** for use by neonatologists, neonatal nurse practitioners, and pediatric housestaff. These include a comprehensive neonatal medication reference, resident teaching files, nursing policies and procedures, clinical guidelines and pathways, phone numbers of referring pediatricians and other subspecialists, conversion tables for weight/length/temperature, and so on. The on-line references are made available on computers throughout our own Neonatal Intensive Care Unit (NICU) and are used continuously by all personnel working in the NICU. We have found them to be an invaluable aid to standardization of care, as well as to the rapid implementation of changes in medication doses or other aspects of neonatal care when the neonatology attending staff agree on such changes.

2. **A survey and literature review** of the use of computers in neonatal intensive care, from the 1960's to the present. This survey is a living document and is continually updated and expanded as new applications and articles appear. A comprehensive bibliography of the literature on computers in neonatology, complete with abstracts, is also made available on this Web site. It can be accessed through full-text search, category-specific indexes, or

comprehensive indexes by title, publication date, or primary author. The bibliography is maintained in a relational database from which HTML documents are generated on demand.

3. **Detailed information about our own NICU**, with particular emphasis on our 20-year experience with the use of personal computers and networks in neonatal intensive care and resident education. Many of the applications developed in-house, such as the computer-assisted TPN protocol for neonates, are explained and illustrated in detail, and several are made available for downloading. Regional maps, facility floor plans and photos, abbreviated C.V.'s for the neonatology faculty, and charts and graphs of outcome statistics are also offered here.

4. **Diversions and historical items**, including images of interest to neonatologists, classical papers in neonatology that are now in the public domain (mostly from the late 1800's), and explications of research that "cannot or should not be repeated."

5. **A neonatology positions offered/jobs wanted directory**. For various reasons, neonatal intensive care units often suffer from rapid turnover in personnel. Many units also rely on "moonlighters" to fill parts of their staffing needs. Advertisements in medical journals, due to their cost and long turn-around times, are not always effective. The Web site provides an easy way for NICUs, neonatologists, nurse practitioners, and moonlighters to find each other.

6. **An exhaustive listing of neonatal/perinatal medicine resources elsewhere on the Internet** (mailing lists, Web servers, and gopher servers), as well as lists of general pediatric and medical genetics resources, professional societies, clinical and genetic databases, subspecialty book publishers, parent support groups, and so on. The lists are periodically updated and expanded with the aid of Internet search services such as Lycos and Alta Vista.

7. **Aids for repeat visitors**. In order to make it easy for Web site users to find new information, a "what's new" page is maintained that lists all documents added or changed in reverse chronological order. A "citation of the month" page brings important new literature to the immediate attention of the clinician. Finally, a facility is provided so that the user may register his or her EMAIL address and receive an automatic notification whenever new material is made available on the Web site.